

### REMARKS

Claims 22-34 and 36- 64 are pending in the application.

By the foregoing Amendment, the title, specification, and claims 22 and 36 are amended.  
Claim 35 is canceled without prejudice or disclaimer. New claims 50-64 are added.

The title is amended as discussed below. The specification is amended to correct a spelling error.

Claim 22 is amended to incorporate the limitations of claim 35, and claim 36 is amended to depend from claim 22.

New claim 50 is based on claim 24 and its base claim 22 as originally filed, with the following revisions:

- (1) The limitation "or provided on said hollow connector section so as to feed the foam to the gypsum slurry flowing in the hollow connector section" as defined in original claim 22 has been deleted therefrom;
- (2) "an angle ( $\theta_2$ ) around a center axis of the disc between a center of said foam feeding port and an edge portion (J) of said slurry outlet port on the upstream side in the rotational direction is set to be in a range from 0° to 30°", which is described in paragraph [0079] - [0082] of the publication of this application, has been added thereto.

Claims 51-60 depending from claim 50 recite the same limitations as claims 23, 25, 26, 27, 28, 30, 31, 32, 33, and 34 as originally filed.

Claim 61 is directed to method of mixing gypsum slurry with use of a mixer as defined in claim 50, and recites limitations analogous to those of claim 38 as originally filed, but in a method format similar to that of amended claim 36.

Claim 62 depending from claim 61 corresponds to claim 40 as originally filed.

Claims 63 and 64 depending from claim 50 correspond to claim 41 and 42 as originally filed.

These changes are believed not to introduce new matter, and entry of the Amendment is respectfully requested.

Based on the above Amendment and the following Remarks, Applicant respectfully requests that the Examiner reconsider all outstanding objections and rejections, and withdraw them.

#### Allowable Subject Matter

Applicant thanks the Examiner for his indication that claims 35, 41, and 48 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 22 has been amended to incorporate the limitations of claim 35. Accordingly, it is believed that claim 22 and claims 23-34 and 36-49 depending directly or indirectly therefrom are allowable.

#### Objection to the Title

In paragraph 6 of the Office Action, the title was objected to as not being descriptive of the subject matter to which the claims are directed. This objection is believed to be overcome by the foregoing amendment to the title.

Rejections under 35 U.S.C. § 102

In paragraph 9 of the Office Action, claims 22, 23, 25, 28-34, 36, 37, 40, 42, and 49 were rejected under section 102(e) as being anticipated by Shrader et al. (US 6,742,922)<sup>\*</sup>; and in paragraph 10, claim 22 was rejected under section 102(b) as being anticipated by JP 8-25342. This rejection is overcome by the amendment of claim 22 to incorporate the limitations of allowable claim 35 and the amendment of claim 36 to depend from claim 22.

Rejections under 35 U.S.C. § 103

In paragraph 14 of the Office Action, claims 24, 26, 27, 38, 39, and 43-47 were rejected under section 103(a) as being unpatentable over Shrader et al. (US 6,742,92282) in view of WO 99/67074; and in paragraph 15, claims 24, 26, and 27 were rejected under section 103(a) as being unpatentable over JP 8-25342 in view of WO 99/67074. These rejections are overcome by the amendment of claim 22, from which claims 24, 26, 27, 38, 39, and 43-47 depend, to incorporate the limitations of allowable claim 35; and by the amendment of claim 36 to depend from claim 22.

New Claims 50-64

Claim 24 was rejected based on Schrader in view of WO 99/67074 and on JP 8-24342 in view of WO 99/67074. The invention as recited in new claim 50, which is based on claim 24, is believed to be patentable over the combinations of references cited in the Office Action, in view of the following features:

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<sup>\*</sup> The issue date of Schrader et al. is June 1, 2004, which is more than one year prior to the November 25, 2005 filing date of the present application. Accordingly, it is believed that the rejection should have been made under section 102(b).

- (1) "said foam feeding port is provided on the annular wall on an upstream side of the slurry outlet port in the rotational direction so as to feed the foam to the gypsum slurry immediately before the gypsum slurry enters said slurry outlet port";
- (2) "an angle ( $\theta_2$  around a center axis of the disc between a center of said foam feeding port and an edge portion (J) of said slurry outlet port on the upstream side in the rotational direction is set to be in a range from  $0^\circ$  to  $30^\circ$ "; and
- (3) "said slurry outlet port is provided with a plurality of blades, which impose shearing force on the slurry flowing through the slurry outlet port and which form a plurality of slits in the slurry outlet port".

None of Schrader et al., WO 99/67074, or JP 8-24342 teaches or suggests that the foam feeding port provided on the annular wall on an upstream side of the slurry outlet port is combined with the slurry outlet port provided with a plurality of blades.

As described in paragraph [0038] of the publication of this application, the ingredients fed to the mixing area move outward on the rotary disc under centrifugal force while being agitated and mixed, and the slurry reaches the peripheral zone of the mixing area in a condition that the mixing is substantially completed. The foam is fed to the slurry in the peripheral zone at the final stage of preparation of slurry. Immediately after addition of foam to the slurry, the slurry passes through the outlet port provided with the blades. Under the centrifugal force of the mixer, shearing force is caused between the slurry and the blades and therefore, the slurry and the foam are mixed during passing through the slit. As a result of mixing the slurry and foam at the slurry outlet port by the shearing action of the blades, separation of the slurry and the foam owing to the difference in specific gravity is restricted, as described in paragraphs [0038] of the publication of this application.

In the present invention, both of the foam feeding port and the slurry outlet port are located on the annular wall, and these ports are very close to each other. Further, the slurry outlet port is provided with the blades for mixing of the slurry and the foam with use of their movement under centrifugal force of the mixer. The combination of these arrangements is effective not only in prevention of separation of the slurry and the foam, but also mixing of the slurry and the foam.

JP 8-24342, which was cited in rejecting claim 24, is the publication described in paragraph [0014] of the publication of this application. JP 8-24342 discloses the slurry outlet port on the annular wall, but it does not disclose the foam feeding port on the annular wall, nor the blades provided at the slurry outlet port.

Schrader et al., which also was cited in rejecting claim 24, discloses the slurry outlet port on the annular wall but it does not disclose the foam feeding port on the annular wall nor the blades provided at the slurry outlet port.

WO 99/67074, which also was cited in rejecting claim 24, is the publication of PCT/JP99/03160, which claims priority from JP application No. 10-174765. The disclosure of WO 99/67074 is identical with that of JP 2000-6137, which is the publication of JP application No. 10-174765, and which is described in paragraph [0024] of the publication of this application.

As described in paragraph [0024] of the publication of this application, WO 99/67074 (JP 2000-6137) discloses that an attachment having openings for screening is located at a slurry outlet port on an annular wall of the mixer. The attachment of WO 99/67074 (JP 2000-6137) effects filtering of a stiff residuum which has a larger size than the size of opening, and prevents such a residuum from being discharged on the gypsum board liner paper. In this mixer, feeding conduits for powder materials, liquid (water) and foam are connected to an upper plate of the

mixer in its inward area, so that the foam introduced into the mixer is fully agitated and mixed with the slurry within the mixer.

However, WO 99/67074 does not disclose the foam feeding port on the annular wall. Although slits or grids are provided at the slurry outlet port, they are merely for preventing the residuum from being discharged on the gypsum board liner paper. WO 99/67074 does not disclose the provision of blades at the slurry outlet port for mixing of slurry and foam at the slurry outlet port by a shearing action.

Therefore, none of the cited references discloses the combination of the aforementioned three features ((1) both of the foam feeding port and the slurry outlet port are located on the annular wall, (2) these ports are very close to each other, and (3) the slurry outlet port is provided with the blades for mixing of the slurry and the foam with use of their movement under centrifugal force of the mixer) for effectively preventing the separation of the slurry and the foam and effectively mixing the slurry and the foam.

### Conclusion

All objections and rejections have been complied with, properly traversed, or rendered moot. Thus, it now appears that the application is in condition for allowance. Should any questions arise, the Examiner is invited to call the undersigned representative so that this case may receive an early Notice of Allowance.

Favorable consideration and allowance are earnestly solicited.

Respectfully submitted,

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**Enclosures: Petition for extension of time**